

ABSTRACT OF THE INVENTION

The invention relates to a melt-formed, high-silver, alkali-free, borosilicate glass that can be used for fabricating optical devices. For gradient index lenses, the glass can be subjected to an ion exchange process in order to introduce a less polarizable ion onto the glass surface having a higher refractive index on the surface relative to the center of the glass. The glass is unique in that the silver ions are not introduced by ion exchange. Rather, the high silver content of the glass is achieved during melting. As melted, the transparent alkali-free, borosilicate glass produced by the inventive method contains a high concentration of silver, exhibits a high refractive index and negligible attenuation at wavelengths longer than about 400 nm, making it particularly suitable for high performance fiber optic components such as gradient index or so-called GRIN lenses.